



## Department of Energy

Field Office, Oak Ridge  
P.O. Box 2001  
Oak Ridge, Tennessee 37831— 8542

January 14, 1993

Mr. A. S. Quist  
International Technology  
Martin Marietta Energy Systems, Inc.  
P. O. Box 2003  
Oak Ridge, Tennessee 37831-7307

Dear Mr. Quist:

### DOCUMENT RELEASE

The Department of Energy K-25 Site Office reviewed the enclosed documents and has determined that they are fully releasable to ChemRisk and the State of Tennessee for official use.

Sincerely,

  
Thomas S. Tison  
K-25 Site Manager

### Enclosures:

1. OR-890, dtd. 5/88
2. Gross to Heiskell, dtd. 12/4/90
3. Hall to Heiskell, dtd. 4/17/91
4. Heiskell to Freeman, dtd. 4/11/91

1229

ChemRisk Repository Number: 229 Document Number: 00378  
Title: Oil Sheen Containing PCBs at the Oak Ridge K-25 Site  
Authors: M. M. Heiskell  
Abstract: Letter and attachment describing light oil sheen noted on Clinch  
River at K-25 site. Presents results of PCB samples.  
Reviewer: G. Bruce  
Document Source or Location: K-25 SDRC  
Date Document Issued: 04/11/91  
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Keywords: PCBs, Surface water, Clinch River, Release, Uranium, Metals,  
Organics

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00378



**FILE COPY**  
**Department of Energy**

Oak Ridge Operations  
P.O. Box 2001  
Oak Ridge, Tennessee 37831-7136

April 11, 1991

Ms. Alfreda Freeman  
Environmental Protection Agency, Region IV  
Toxic Unit  
345 Courtland Street, N.E.  
Atlanta, Georgia 30365

Dear Ms. Freeman:

**OIL SHEEN CONTAINING PCBS AT THE OAK RIDGE K-25 SITE**

As Oak Ridge K-25 Site employees discussed with you on April 10, 1991, the information on the oil sheen containing polychlorinated biphenyls (PCBs) at the Oak Ridge K-25 Site is enclosed. This information is being submitted in accordance with 40 CFR 761.125(a)(1)(i) to request your guidance on cleanup of a PCB spill which has contaminated surface waters.

Enclosure 1 contains the fact sheets which summarize the situation and our actions up to this time. Enclosure 2 contains a diagram (Figure 1) of the area showing the sample locations, the results of analyses to date, and a description of the analyses. Enclosure 3 contains a fact sheet outlining our near-term actions. Enclosure 4 contains a topographical map (Figure 2) of the Oak Ridge K-25 Site and surrounding area. The nearest drinking water supply is located 13 miles downstream at the Kingston Water Plant which is located on an adjacent tributary of the Clinch River. At this point, we have still been unable to identify the source of the PCBs and are continuing characterizations in the area.

If you have any questions or require additional information, please contact Richard Frounfelker of the K-25 Site Office at (615)576-2990.

Sincerely,

A handwritten signature in cursive script, reading "M. M. Heiskell", is written above the typed name.

Marianne M. Heiskell  
Contracting Officer's  
Representative

cc:

K. L. Brady, MS-7308, Bldg. K-303-8, Oak Ridge K-25 Site  
L. E. Hall, MS-7134, Bldg. K-1001, Oak Ridge K-25 Site  
L. W. Long, MS-7314, Bldg. K-303-8, Oak Ridge K-25 Site  
N. Carnes, CC-10, ORO  
L. L. Radcliffe, EW-92, ORO

**MARTIN MARIETTA ENERGY SYSTEMS, INC.**

POST OFFICE BOX 2003  
OAK RIDGE, TENNESSEE 37831-7134

April 11, 1991

Marianne M. Heiskell  
K-25 Site Manager  
Department of Energy, Oak Ridge Operations  
Post Office Box 2003  
Oak Ridge, Tennessee 37831-7136

Dear Ms. Heiskell:

Oil Sheen Containing PCBs at the Oak Ridge K-25 Site

The enclosed information was requested by the Environmental Protection Agency (EPA), Region IV, on April 10, 1991, for the oil sheen containing polychlorinated biphenyls (PCBs) discovered at the Oak Ridge K-25 Site. This information is being submitted in accordance with 40 CFR 761.125(a)(1)(i) to request their guidance on cleanup of a PCB spill which has contaminated surface waters. Please transmit this information to Ms. Alfreda Freeman, EPA, Region IV, Toxic Unit, 345 Courtland Street, NE, Atlanta, Georgia 30365.

Enclosure 1 contains the fact sheets which summarize the situation and our actions up to this time. Enclosure 2 contains a diagram (Figure 1) of the area showing the sample locations, the results of analyses to date, and a description of the analyses. Enclosure 3 contains a fact sheet outlining our near-term actions. Enclosure 4 contains a topographical map (Figure 2) of the Oak Ridge K-25 Site and surrounding area. The nearest drinking water supply is located 13 miles downstream at the Kingston Water Plant which is located on an adjacent tributary of the Clinch River. At this point, we have still been unable to identify the source of the PCBs and are continuing characterizations in the area.

If you have any questions or require additional information, please contact L. W. Long at 574-8222.

Sincerely,

*for M. E. Hall*  
L. E. Hall, Manager  
Oak Ridge K-25 Site

EH:CLBaker:sgt

enclosures 4

c: K. L. Brady  
G. G. Fee  
J. R. Merriman  
M. E. Mitchell  
File - LEH

cc/enc: R. E. Frounfelker (DOE)  
EMD Document Center - RC

**APPROVAL FOR RELEASE**

Document # \_\_\_\_\_; Date 4/11/91  
Title/Subject: Oil Sheen Containing PCBs at the Oak Ridge K-25 Site, LE Hall to MM Heiskell, 4/11/91 and enclosures (4)  
Approval for unrestricted release of this document is authorized by the Oak Ridge K-25 Site Classification and Information Control Officer

Ridge K-25 Site Classification and Information Control Office, Martin Marietta Energy Systems, Inc., PO Box 2003, Oak Ridge, TN 37831-7307.

ENCLOSURE 1

## FACT SHEET UPDATE

K-25 (Old Powerhouse/Surplus Sales Area) - 4/10/91 (UO)

Light Oil Sheen on Clinch River

### BACKGROUND

On April 10, 1991, a light oil sheen was observed on the Clinch River at the K-25 Site "old" powerhouse/surplus sales area.

### EVENT

- \* Manholes on the drain lines leading to the river contained an oily substance which smelled and looked like diesel. Appropriate manhole/drain lines were plugged.
- \* Booms and absorbent pads are containing the sheen.
- \* Surveillance by boat up and down river continues to ascertain whether oil had migrated from the area prior to discovery. Clinch River Water Dispersion Model is being run.
- \* Contacts with TVA and downstream water intake facilities have been established.
- \* Source identification continues. Samples for analysis have been taken, and results will not be available until early evening.
- \* Strategies are being formulated in case the substance is other than diesel.
- \* National Response Center and Tennessee Emergency Management Agency were notified. EPA Region 4 has established contact.
- \* EM-32 notified.

**FACT SHEET UPDATE**  
**K-25 (OLD POWERHOUSE/SURPLUS SALES AREA) - APRIL 11, 1991 (UO) (12:00 NOON)**  
**LIGHT OIL SHEEN ON CLINCH RIVER**

**Background**

On April 10, 1991, a light oil sheen was observed on the Clinch River at the K-25 Site "old powerhouse/surplus sales area. The material has been sampled, and an investigation is continuing to determine the source of the release.

**Events Update**

- Sheen is still being reduced: boom still in place
- A visual stream survey both upstream and downstream did not reveal the presence of any additional oil on the Clinch River
- Mitigating measures have been taken to stop any additional oil release. The line has been plugged upgradient of the suspected release area, below the release area, and at the river bank. A boom and absorbent pads have been placed to contain the oil sheen on the river
- Investigation to determine the source of the oil sheen is continuing
  - Primary focus today is excavation to determine the source of the release
  - Excavation actions will be initiated this afternoon
  - Polychlorinated Biphenyls have been found in the oily substance. Other organic analyses of the oily substance are pending
  - Soil sample analyses in the area of the release are also pending
  - The storm drain line remains plugged to preclude any additional discharges
- An action plan is being developed for controlling inflow from expected rainfall
- Vehicles staged in the release area are being relocated. There is no evidence that these vehicles have contributed to the release
- Water levels within the storm drain are being monitored. There has been no significant change in the level
- Follow-up contacts with TEMA, NRC, (HQ-EM), and the EPA are being made

ENCLOSURE 2



## ANALYTICAL RESULTS

Samples were obtained from each of the locations identified in Fig. 1. except for K-711-MH-B which was dry and no sample was possible. Samples were analyzed for PCBs, uranium, metals, and organic compounds. Results of these analyses available at this time are shown in Table 1.

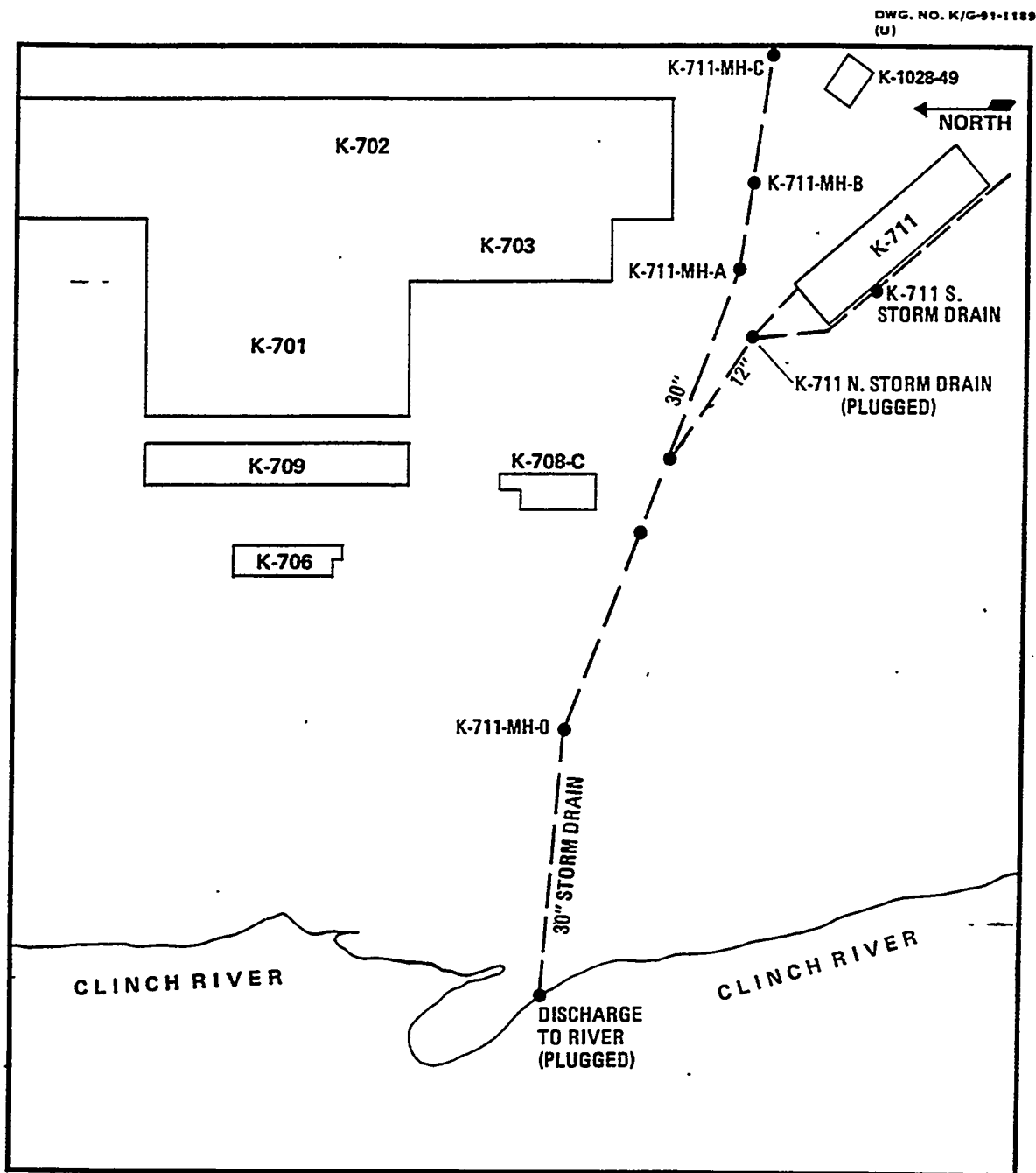


Fig. 1. Powerhouse area diagram showing sample locations.

TABLE 1. K-711 SAMPLING RESULTS

11-Apr-91

CONSTITUENT	LOCATION					
	SPILL	SOUTH SD	NORTH SD	MH-Q	RIVER	MH-A
MIBK	2,800,000 ug/L	1,200,000 ug/L	None	None	None	None
PCB	170,000,000 ug/kg	6,800,000 ug/kg	108,000 ug/kg	2000 ug/L	300 ug/L (720 Y12)	4.2 ug/L (4.5 Y12)
Oil & Grease	261,000 mg/L	7,200 mg/L	612 mg/L	12.5 mg/L	4 mg/L	<2 mg/L
Ethyl Benzene	510,000 ug/L	320,000 ug/L	44,000 ug/L	<5 ug/L	<5 ug/L	<5 ug/L
Toluene	260,000 ug/L	100,000 ug/L	<250 ug/L	<5 ug/L	<5 ug/L	<5 ug/L
Xylene	350,000 ug/L	2,800,000 ug/L	590,000 ug/L	None	None	None
Hydrocarbons	75,000,000 ug/L	67,000,000 ug/L	23,000,000 ug/L	240 ug/L	None	N/A
Lead	<0.73 mg/L	<0.004 mg/L	0.0049 mg/L	.	<0.004 mg/L	0.035 mg/L
Chromium	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	.	<0.01 mg/L	<0.01 mg/L
Uranium	<1.0 ug/g	<0.1 mg/L	<0.1 mg/L	<0.1 mg/L	<0.1 mg/L	<0.1 mg/L
Analysis is incomplete						
MH-C						
						0.79 ug/L (0.9 Y12)
						2 mg/L
						<5 ug/L
						<5 ug/L
						None
						N/A
						0.030 mg/L
						<0.01 mg/L
						<0.01 mg/L

MIBK: Methyl isobutyl ketone

## ENCLOSURE 3

FACT SHEET UPDATE (4/11/91 1700)  
K-25 (OLD POWERHOUSE/SURPLUS SALES AREA) - APRIL 10, 1991 (UO)  
LIGHT OIL SHEEN ON CLINCH RIVER

Background

On April 10, 1991, a light oil sheen was observed on the Clinch River at the K-25 Site "old" powerhouse/surplus sales area. The material has been sampled, and an investigation is continuing to determine the source of the release.

Actions taken through 1700 April 11, 1991, include:

- placed boom on river and contained oil release,
- plugged storm drain discharge (no further release to water is occurring),
- distributed absorbent pads to clean up oil in boomed area,
- surveyed river 8 miles downstream, 5 miles upstream; no oil sheen found,
- isolated the storm drain at the suspected source,
- collected water and soil samples to determine extent of the oily substance and possible source,
- determined the presence of polychlorinated biphenyls in the oily substance, and
- made appropriate notifications.

Events Update

Planned activities next 48 hours.

- Planning for rainfall event
  - further isolating the storm line to limit storm water influx
  - sandbagging manholes
  - placing plastic over manholes
  - placing an additional plug in the line
  - water will be retained in the storm drain behind the plug
  - in the event of heavy rainfall, water from storm drain will be accumulated in a depressed area within the vicinity of the plugged drain line
- Limited leak test of an area within a RCRA/TSCA storage area to verify that this facility has not contributed to the release of the oily substance.

- Planning excavation at the suspected source to initiate cleanup of the visible oil
- Continuing sampling activities to verify the source of the oily substance
- Continuing surveillance to ensure area containment
- Transmitted analytical data, fact sheets, and location maps to EPA Region IV - Toxic Unit.
- Planned activities were addressed with the EPA Region Emergency Response Center personnel.

ENCLOSURE 4

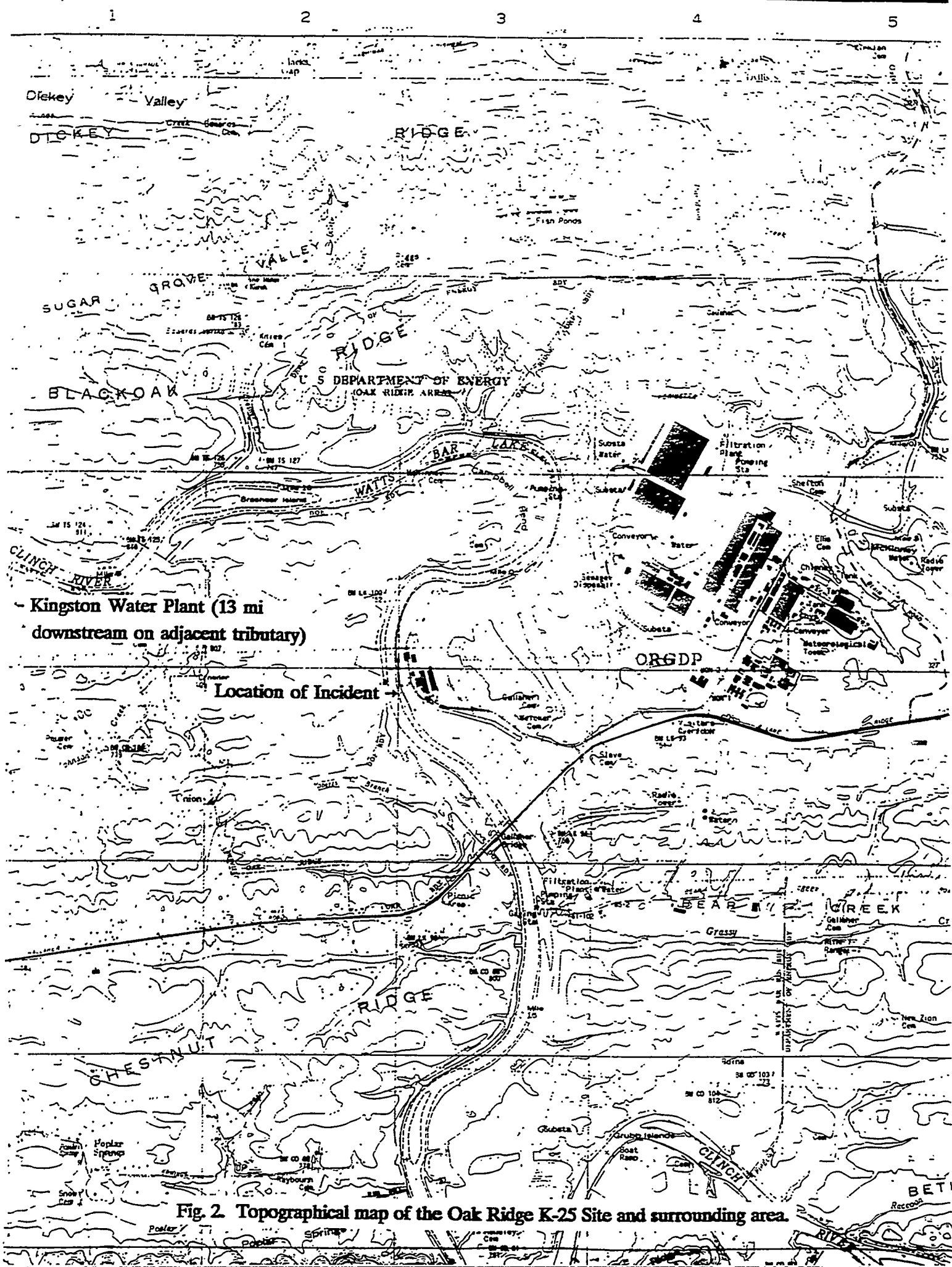


Fig. 2 Topographical map of the Oak Ridge K-25 Site and surrounding area.